necrosis factor α and β, interleukin-1 receptor antagonist, soluble receptors for interferon-γ, soluble receptors for interleukin-1, and soluble receptors for interleukin-6;

b) an absorbent matrix comprising an inert medium attached to at least one binding partner capable of specifically binding to the targeted immune system inhibitor of (a);

c) a conduit for conducting the acellular component or fraction of the acellular component to the absorbent matrix to produce an altered acellular component or altered fraction of the acellular component having a reduced amount of the targeted immune system inhibitor; and,

d) a conduit for conducting the altered acellular component or fraction of the acellular component from the absorbent matrix to the cellular component to produce an altered whole blood.

51. The extracorporeal system of claim 50, wherein the acellular component or the fraction of the acellular component is a plasma component or fraction thereof.

52. The extracorporeal system of claim 50, wherein the inert medium is selected from the group consisting of: a hollow fiber, a macroporous bead, a cellulose-based fiber, a synthetic fiber, a flat membrane, a pleated membrane, and a silica-based particle.

53. The extracorporeal system of claim 50, wherein the inert medium is a hollow fiber.

54. The extracorporeal system of claim 50, wherein the inert medium is a macroporous bead.

55. The extracorporeal system of claim 50, wherein the inert medium is a cellulose-based fiber.

56. The extracorporeal system of claim 50, wherein the inert medium is a synthetic fiber.

57. The extracorporeal system of claim 50, wherein the inert medium is a flat or pleated membrane.

58. The extracorporeal system of claim 50, wherein the inert medium is a silica-based particle.

59. The extracorporeal system of claim 50, wherein the binding partner is covalently joined to the inert medium.

60. The extracorporeal system of claim 50, wherein the binding partner is a binding partner to which the targeted immune system inhibitor binds to in nature, or a fragment of the binding partner to which the targeted immune system inhibitor binds to in nature, wherein the fragment specifically binds to the targeted immune system inhibitor.

61. The extracorporeal system of claim 50, wherein the binding partner or fragment is produced recombinantly.

62. The extracorporeal system of claim 50, wherein the binding partner is a monoclonal antibody or a fragment of a monoclonal antibody that specifically binds to the targeted immune system inhibitor.

63. The extracorporeal system of claim 62, wherein the monoclonal antibody is produced recombinantly.

64. The extracorporeal system of claim 50, wherein the binding partner comprises a plurality of different monoclonal antibodies or fragments thereof, wherein the plurality of monoclonal antibodies or fragments thereof are capable of specifically binding to the targeted immune system inhibitor.

65. The extracorporeal system of claim 50, wherein the binding partner comprises a plurality of different monoclonal antibodies or fragments thereof, wherein the monoclonal antibodies or fragments thereof are collectively capable of specifically binding to a plurality of targeted immune system inhibitors.

66. The extracorporeal system of claim 50, wherein the binding partner comprises a polyclonal antibody preparation or fragments of a polyclonal antibody preparation that specifically bind to the targeted immune system inhibitor.

67. The extracorporeal system of claim 50, wherein the binding partner comprises a plurality of different polyclonal antibody preparations or fragments thereof, wherein the

polyclonal antibodies or fragments thereof are capable of specifically binding to the targeted immune system inhibitor.

68. The extracorporeal system of claim 50, wherein the binding partner comprises a plurality of different polyclonal antibody preparations or fragments thereof, wherein the polyclonal antibodies or fragments thereof are capable of specifically binding to a plurality of targeted immune system inhibitors.

69. The extracorporeal system of claim 50, wherein the binding partner is a synthetic peptide.

70. The extracorporeal system of claim 69, wherein the synthetic peptide is conjugated to a carrier.

71. The extracorporeal system of claim 50, wherein the binding partner comprises a plurality of synthetic peptides capable of specifically binding to the targeted immune system inhibitor.

72. The extracorporeal system of claim 71, wherein the plurality of synthetic peptides is conjugated to a carrier.

73. The extracorporeal system of claim 50, wherein the binding partner comprises a plurality of synthetic peptides capable of specifically binding to a plurality of targeted immune system inhibitors.

74. The extracorporeal system of claim 73, wherein the plurality of synthetic peptides is conjugated to a carrier.

75. An extracorporeal system for reducing the amount of a targeted immune system inhibitor in whole blood, comprising:

a) an apparatus for separating whole blood into a cellular component and an acellular component or fraction of the acellular component, wherein the acellular component or the fraction of the acellular component contains a targeted immune system inhibitor selected from the group consisting of: soluble receptors for tumor necrosis factor α and β, interleukin-1 receptor antagonist, soluble receptors for interferon-γ, soluble receptors for interleukin-1, and soluble receptors for interleukin-6;

b) a mixing chamber containing a binding partner capable of specifically binding to the targeted immune system inhibitor of (a) to form a binding partner/immune system inhibitor complex;

c) a conduit for conducting the acellular component or fraction of the acellular component from the apparatus of (a) to the mixing chamber of (b) to produce an altered acellular component or fraction of the acellular component containing a binding partner/immune system inhibitor complex;

d) a mechanism for removing the binding partner/immune system inhibitor complex from the altered acellular component or fraction of the acellular component to produce an altered acellular component or fraction of the acellular component having a reduced amount of the targeted immune system inhibitor;

e) a conduit for conducting the acellular component or fraction of the acellular component from the mixing chamber of (b) to the mechanism for removing the binding partner/immune system inhibitor complex of (d); and,

f) a conduit for conducting the altered acellular component or fraction of the acellular component from the mechanism for removing the binding partner/immune system inhibitor complex of (d) to the cellular component to produce an altered whole blood.

76. The extracorporeal system of claim 75, wherein the mechanism for removing the binding partner/immune system inhibitor complex of (d) is selected from the group consisting of: an absorbent matrix capable of specifically binding to the binding partner and a mechanical mechanism for removing the binding partner/immune system inhibitor complex from the altered acellular component or fraction of the acellular component.

77. The extracorporeal system of claim 76, wherein the mechanical mechanism for removing is a filter that retains the binding partner/immune system inhibitor complex and passes the altered acellular component or fraction of the acellular component through to the conduit of (f).

78. The extracorporeal system of claim 76, wherein the absorbent matrix comprises a compound capable of specifically binding to the binding partner such that the

binding partner/immune system inhibitor complex is removed from the acellular component or fraction of the acellular component, whereby the altered acellular component or fraction of the acellular component passes to the conduit of (f).

79. The extracorporeal system of claim 75, wherein the acellular component or fraction of the acellular component is a plasma component or fraction of the acellular component.

80. An extracorporeal system for reducing the amount of a targeted immune system inhibitor in whole blood, comprising:

a) a means for separating whole blood into a cellular component and an acellular component or fraction of the acellular component, wherein the acellular component or the fraction of the acellular component contains a targeted immune system inhibitor selected from the group consisting of: soluble receptors for tumor necrosis factor α and β, interleukin-1 receptor antagonist, soluble receptors for interferon-γ, soluble receptors for interleukin-1, and soluble receptors for interleukin-6;

b) a means for providing a binding partner capable of specifically binding to the targeted immune system inhibitor in (a);

c) a means for conducting the acellular component or fraction of the acellular component to the means for providing the targeted immune system inhibitor to produce an altered acellular component or fraction of the acellular component;

d) a means for conducting the altered acellular component or fraction of the acellular component from the absorbent matrix to the cellular component to produce an altered whole blood.

81. The extracorporeal system of Claim 80, wherein the means for providing a binding partner comprises an absorbent matrix comprising an inert medium attached to a binding partner capable of specifically binding to the targeted immune system inhibitor.

82. The extracorporeal system of Claim 80, wherein the means for providing a binding partner comprises:

(i) a mixing chamber containing a binding partner capable of specifically binding to the targeted immune system inhibitor to form a binding partner/immune system inhibitor complex;

(ii) a means for conducting the acellular component or fraction of the acellular component to the mixing chamber to produce an altered acellular component or fraction of the acellular component containing a binding partner/immune system inhibitor complex; and,

(iii) a mechanism for removing the binding partner/immune system inhibitor complex from the altered acellular component or fraction of the acellular component to produce an altered acellular component or fraction of the acellular component having a reduced amount of the targeted immune system inhibitor.